DOCUMENT RESUME

ED 286 829 SP 029 278

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TITLE How Young People Interpret Teachers' Sanctions.
PUB DATE Apr 87
NOTE 83p.; Paper presented at the Annual Meeting of the American Educational Research Association (Washington, DC, April 20-24, 1987).
PUB TYPE Speeches/Conference Papers (150) -- Reports - Research/Technical (143)

EDRS PRICE MF01/PC04 Plus Postage.
DESCRIPTORS *Attribution Theory; Discipline; *Sanctions; Secondary Education; Secondary School Students; *Student Attitudes; *Teacher Behavior; *Teacher Student Relationship

ABSTRACT

Results of four experiments concerning the way young people interpret an intended or expressed sanction (praise or blame) from a teacher are presented. The intention of the four studies was to expose the flaws in Meyer's 1984 attempted explanations of such interpretation, in which sanctions are paradoxically received by the student as an evaluation of his or her talent versus effort (e.g., the student feels that greater praise goes to the less talented person for expending the greater effort). The experiments involved four groups of West German students (N=180; N=86; N=225; N=177) between the ages of 13 and 19 who interpreted teacher/student interactions on a series of questionnaires. The research was designed to test an alternative attempted explanation, and to find out in which areas paradoxical conclusions emerge. This paper discusses results in terms of the alternative explanation, the expectation/discrepancy hypothesis. (CB)

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How Young People Interpret Teachers' Sanctions[1]

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Annual Meeting of the American Educational Research Association (AERA), April 20-24, 1987.

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Abstract

From the aspect of social psychology, sanctions (praise and blame) are regarded as subtle communicative processes. Distinctions can be made between what is meant, what is said and what is understood by a sanction, and the relations between these can be analyzed. This article investigates the way young people interpret either an intended or an expressed sanction. Under certain conditions, subjects believe that a pupil who is criticized by a teacher assumes the teacher to have a higher perceived ability estimate than a pupil who is not criticized. Meyer (1984) has described this reaction as an "apparently paradoxical effect" and has explained it by means of the sanction/effort/talent explanation. This explanation is criticized for theoretical reasons. Four experiments were planned and carried out in order to corroborate this criticism and to support an alternative explanation. The explanation

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offered is described as the expectation/discrepancy hypothesis. In their procedure, the experiments follow the investigational paradigm drawn up by Meyer. The subjects used were all aged between thirteen and eighteen. Paradoxical reactions arose seldom and only in performance situations. Inferences about the perceived ability estimate from differential sanctioning were observed only when they were confronted with a talent scale. In those cases where young people, given differing sanctions, drew conclusions about the teacher´s perceived ability estimate in paradoxical fashion, the proposed explanation was more easily confirmed than that of Meyer.

How young People Interpret Teachers´ Sanctions

A social psychological framework for the concepts of "praise" and "blame"

Discussion and research on praise and blame as positive and negative sanctions in the pedagogical and psychological field have been carried out principally under the aspect of effectivity. In past centuries, punishment was seen as the appropriate medium of education. Today, under the influence of humanistic attitudes and the concepts of behaviouristic theories of learning, praise/reinforcement are regarded as effective techniques in influencing behavior. The relevant empirical research is, however, not as yet clearly defined. As far as direct feedback is concerned, praise can be just as constructive as criticism. As findings show (cf. Morgan, 1984), praise is an extrinsic reward, which can reduce the motivation to take an interest in a given matter. What is important here, is the recurrent finding that more

praise does not necessarily mean more effectiveness. The relative frequency of praise in relation to a constant behavioural pattern does not, in general, correlate significantly with performance progress (Brophy, 1981).

Research to date regards sanctions as educative techniques. Praise and blame can be seen, however, as complex and subtle interpersonal relations, which are open to sociopsychological analysis. New insights can be gained by taking these into account. Firstly, however, it is necessary to attempt to clarify the semantics of the concepts "praise" and "blame". This will be done only with regard to "praise". "Praise" is used in (at least) three variants of meaning:

1. Firstly, the concept "praise" can mean: "An individual expresses agreement/approval of another person's behaviour". According to this, praise expresses relations on something meant. There is the educator E, who utters the expression; there is the expression X and what is intended to be expressed (A

for approval); there is a behaviour B to which the approval refers; and finally there is the pupil P, to whom the expression is directed. This can be expressed as

(1) $\underset{\text{meant}}{\text{praise}} = \underset{\text{df meant}}{R}(E,X,A,B,P)$,

which can be semantically interpreted as "Praise characterizes precisely that ordered relation, in which an educator realizes his approval of B towards P by means of an intended communicative expression". This corresponds to the working definition on which Kanouse, Gumpert, and Canavan-Gumpert (1981) base their socio-psychological analysis of praise.

2. Praise can be spoken of when a linguist or extralinguist act of one person in relation to another is evidenced by a third party, and assumed to express approval:

(2) $\text{praise}_{act} = R_{df\ act}(X,E,A,B,P)$.

Empirical investigations on the effectiveness of praise/criticism make use of this definition by registering previously fixed acts and relating them to other variables.

3. Besides these characterizations from the view of the praiser and a third party respectively, the meaning of a sanction functions as something understood. This can be defined as

(3) $\text{praise}_{und} = R_{df\ und}(P,X,E,A,B)$,

which is read as "P interprets the expression X of the educator E as a sign of A in relation to the behaviour B". This concept of praise is complementary to the first. Of the three, it is the least reconcilable with

everyday perception. It does, however, capture one significant aspect: it draws attention to the question about the mediating cognitive and motivational processes in the pupil. What effect a statement of praise has, depends on how it is interpreted by the individual to whom it is directed.

In all meanings the following three presuppositions are included: firstly, a predication between B and P is always expressed in praise. This is, namely, the statement "the individual P has B". B can be a behavior the individual has shown, it can involve a product of the individual has brought about (a picture, a piece of work, an answer) or a characteristic (beauty, industry). Secondly, praise contains a deontic aspect which implies an evaluation A on P. In the most elementary case it can be expressed as "B is preferred to Non-B". Finally, praise always involves an expression of personal relation implying that E is informed about B and justified in expressing A to P.

The definitions (1), (2), and (3) are logically independent of one another. They allow intrinsically any number of possible combinations with each other. Both individually and in combination they delimit differing sections of reality from one another. If (1) and (2) are combined, the possible options used by the speaker to express intended praise can be examined. Knapp, Hopper, and Bell (1984) have, for example, analysed in which linguistic combination compliments are realized. Kanouse and others (1981), above all, indicate that the formulation of praise can be a decisive factor in how it is interpreted. However, it is also possible to examine which intentions can give rise to expressions of praise. Brophy (1981) established on the basis of observations in the classroom that expressions of praise can have quite different functions. They can be expressions of surprise and admiration, they can be introduced to create a peaceful atmosphere, or they can be meant as compensation for severe criticism made previously, as a form of transitional ritual and so forth. A statement of praise can even express the opposite, as in the case

with irony and sarcasm. Praise$_{act}$ is then the opposite of praise$_{meant}$. If (2) and (3) are combined, the intended area in which the recipient attempts to interpret expressions of praise can be marked. Praise can be read as reinforcement, as an incitement to continue in the same vein, but it can also be understood as an indication that enough work has been done, seen as a straightforward feedback of information, as a spontaneous emotional expression by the other party or as an attempt to influence which restricts individual freedom. Depending on whether information about high individual ability is inferred from praise, or the activity is seen as a means of gaining praise, this can induce an increase or decline in intrinsic motivation (Morgan, 1984).

Progressing to the formation of triple combinations, the exceptional case emerges:

(4) praise$_{equiv.}$ = df praise$_{meant}$
and praise$_{act}$ and praise$_{und.}$

This corresponds to the (everyday) idea of praise where intention matches the expression and understanding (in the sense that a material equivalence arises between (1), (2), and (3)). The ambiguous findings of previous investigations reveals that such an equivalence class does not arise per se. Instances can therefore be assumed where intentions which are not directed as praise by the educator are nevertheless understood by the pupil as such. Equally, an expression intended as praise can be (mis-) interpreted by the pupil in another way, possibly even as criticism. In these cases, the complex relations between intention, expression and understanding are objects of analysis which require further research.

The interpretations of teacher sanctions

In this article, meaning (3) has been singled out for investigation. While intended (1) and expressed sanctions (2) are kept constant experimentally, it is

asked how young people interpret teacher sanctions. It is initially assumed that exprcssed praise has positive effects under certain conditions and negative effects under others: expressed praise can be read as praise, but also as criticism. The question is which cognitive processes can be assumed to be involved in the interpretation. In a socio-psychological analysis of praise, Kanouse and others (1981) have indicated various possible means by which praise expressed by the speaker can, as understood by the recipient, be transformed into non-praise: if the recipient believes not to deserve it; or does not find it credible; or believes that the speaker does not possess the relevant information ("if only they knew!"); or considers the standards of the praiser to be too low; or has other value preferences; if the expression of praise contains an expectation about future performance which the recipient fears unable to fulfil. According to Kanouse and others (1981), the possibility of such interpretations increases if the praise is strong rather than weak, general rather than specific and if it relates to a characteristic rather than to an

attitude or product. The basis for this conclusion is that, in each of these cases, the praised individual has greater doubts about the veridicality of the praise and the attention is directed more to the person rather than to the activity praised.

A systematic analysis of such effects for teacher-pupil interaction is possible if one refers to Kelley (1972), who concluded that individuals infer the reasons for the behaviour patterns of another person from three sources of information: firstly, from details about the distinctness of the person. Kelley examines whether a person behaves in the same or different ways in similar situations. A pupil who notices that the teacher praises all pupils equally will not presume any differential attitude of the teacher towards the pupils. Secondly, details about consensus are used: revealing the tendency of one teacher to use a greater or lesser degree of praise in comparison to other teachers. Finally, details about consistency are relevant: revealing how a teacher uses praise in similar situations at different times. The

praise of a teacher who always praises a pupil, even in the case of objectively poor performance, reveals a certain attitude of the teacher. The studies now to be reported are concerned only with the question as to how young pupils refer to information about distinctness in order to interpret teacher sanctions.

The phenomenon of the so-called paradoxical effect of praise and criticism, which Meyer (1978) discovered, can be seen in this connection. If a teacher praises two pupils for the same performance in differing degrees, observers assume that the teacher considers the highly praised one to be less talented and not, in fact, the less highly praised. The subjects of Meyer presumed that the pupil derives less support for onesself ability estimate from the higher degree of praise. In such cases, therefore, a high degree of praise has more negative effects than a lower degree. Thus Meyer explains the finding that subjects in the role of less praised pupils were more confident in offering correct solutions to ensuing tasks than subjects in the role of more highly praised,

This phenomenon is paradoxical in that, at least according to the reinforcement theory, the opposite was to be expected. Anologous to this, the same startling result arose in the case of criticism.[2)]

This phenomenon reveals clearly that in order to ascertain in what way praise/blame function, it is necessary to inquire how children decode the relevant comments of the educator. Meyer has convincingly argued that the subjects' conclusions lay on two premises. From the assumption that teachers tend to praise more the pupils who have put more effort into the same performance, they infer great effort from much praise. From the assumption that teachers tend to assume that those pupils who make a great deal of effort are less talented, since they would otherwise not have required such diligence, they infer a low perceived ability estimate from great effort. This allows per transitivity for the inference of a low perceived ability estimate from high praise (summarized in Meyer, 1984). Tacke and Linder (1981) demonstrate this effect in the concrete school situation as well.

From eleven forms, nine pupils per class were selected at random from those pupils who had not achieved values of either extreme in a memory test. The teacher was instructed to praise three of these and not to praise three of these for their memory performances. The three others received no special treatment. After twelve lessons, the self-estimate of the memory was measured a second time. In comparison with the first test, the self-evaluation of the memory had improved significantly amongst the group of pupils who had not been praised. This was not the case with the pupils who had been praised, and those who had received no special treatment.

Nevertheless, Meyer's attempted explanation reveals several weaknesses. These concern the application of the effort-calculation principle. First the explanation entails an inconsistency in the use of the principle of effort-calculation, in the assumption that it operates equally in the case of easy and difficult tasks. The compensatory mechanism, however, (little effort in the case of great talent and

vice-versa) is only valid for easy tasks (from a subjective index of difficulty of 40%). Precisely the reverse holds for difficult tasks (cf. Meyer, 1976, p. 119). If a task is perceived as difficult (10% - 35%), it is great effort rather than little which is regarded as necessary to attain the goal. In the case of less talent, greater effort is not, in practice, considered necessary; but is found to be futile and thus avoided. Where difficult tasks are involved, consistent application of the principle of effort-calculation would forecast that, in the case of failure, a lower perceived ability estimate is inferred from blame as is the case with a neutral reaction. Success in difficult tasks poses additional problems in making a forecast. How can an individual make sense of the fact that a pupil with a relatively low perceived ability estimate has been successful in a difficult task, if the pupil is said to have made relatively little effort? In this connection, Meyer, Bachmann, Biermann, Hempelmann, Plöger, and Spiller (1979, Expt. 3) were able to demonstrate that subjects react to difficult tasks, and even to failure, in the same manner as to easier tasks.

Second, reverting to the effort-calculation principle it would allow the teacher to arrive at the talent that the pupils attribute from their own knowledge about the effort exerted by the pupils. In this case, however, it would only be possible to infer from a sanction the teacher's view of how talented the pupil considers the own person, but not how talented the teacher considers the pupil. Using the effort-calculation theory consistently, therefore, leads to problems to which Meyer (1984, p. 166) does not do justice in his comment that in the case of failure in a difficult task, a lack of effort is seen as the cause, if one considers the ability of the active subject to be high. In fact, with difficult tasks, a lack of effort is to be expected not in individuals with a high assessment of their ability, but in those with a low assessment.

A final point: Meyer's explanation could at best have reference to a special case. This would be when the subject assumes that the teacher possesses a personal opinion of the differing ability of two pupils, but has no information about the amount of

effort the pupils have made. Only in this case can it be expected that the teacher, on the basis of the interpretation of the pupils' ability, has inferred the necessary effort, and proceeded to sanction correspondingly. The probability of this case arising, however, is small. For the more likely event that pupils assume the teacher to have a personal opinion on their ability as well as knowledge about their effort, a reference to the results of Weiner and Kukla (1970) is sufficient. They demonstrate that the intended sanction is probably dependent on effort but only to a minor degree on talent. Consequently, the pupil could not derive any information about the perceived estimate of the ability from differing sanctioning behaviour, but only infer the teacher's evaluation of the efforts; unless, however, assessments of talent and effort are negatively correlated. The opposite is more likely to be the case: research shows that teachers in general attribute greater effort to pupils with high ability than to those with low ability.

In short, Meyer's explanation of the effect is

theoretically weak and much too complex. A more simple and parsimonions explanation is offered.

Methods

The four experiments to be reported on are intended to serve to expose the flaws in Meyer's attempted explanation, to support an alternative attempted explanation and, in addition, to find out in which areas paradoxical conclusions emerge. Meyer's procedure was retained as investigative paradigm. As subjects for the experiment, however, young people only were selected. Apart from a few exceptions (Meyer and others, 1979, Expts. 1 and 2), Meyer worked with adults. The first two experiments were concerned solely with the situation "failure in difficult tasks", a case in which Meyer's attempted explanation is particularly problematic. In both experiments, subjects received a questionnaire with information about two pupils who had both worked on a specific difficult mathematical task and had each arrived at a

false result. One pupil is criticized by the teacher, the other receives a neutral reaction. In each case, the subjects were asked to indicate on a scale how talented the teacher is likely to have considered the respective pupil.

In the first experiment, subjects were given the additional information that the teacher knew that both pupils had exerted equal effort. If Meyer´s attempted explanation were accurate, a paradoxical effect should not arise in this case. In the second experiment, Meyer´s theory was tested against the alternative explanation that pupils attribute the strength of the criticism to the deviation of the indicated performance from that expected by the teacher for the pupil concerned. To test this, various groups of subjects received deliberately differing information. In the third experiment, no scale for the perceived ability estimate was given. Instead, subjects were merely asked what causes the differing behaviour of the teacher could be attributed to. If conclusions as to the pupil´s talent play any role at all in such cases,

this would find expression in the free responses. Moreover, the conclusion mechanism must be discernible. The fourth experiment was carried out to examine whether paradoxical conclusions also arise outside the performance situation.

Experiment 1[3)]

The first experiment was planned to show that Meyer´s explanation for the apparently paradoxical effect of criticism is untenable. According to Meyer, pupils draw conclusions about the percieved ability estimate by means of the perceived assessment of effort. The explanation presupposes that the teacher considers differing efforts to have occured in the case of the respective pupils. Differences in sanctions are attributed to differences in talent via differences in effort. If subjects now believe that the teacher knew both pupils to have put the same effort into a task, they are missing the decisive, descriminating information. If Meyer´s explanation were valid, a paradoxical effect should not arise in this case. If

it does, in fact, emerge, this would show that it cannot be the indication about the effort presumed by the teacher which leads to conclusions on the perceived estimate of ability. In order to gain information about alternative conclusion mechanisms a free basis for the talent ratings was established with one experimental group. A further question of interest was whether the ways and means in which criticism is decoded is dependent on the intelligence variable.

Method of Experiment 1:

A total of 180 pupils in the third year at secondary school (secondary modern and grammar schools), aged between fourteen and seventeen, took part in the experiment. They were requested to co-operate in an ivestigation in which it was a matter of putting oneself in somebody else´s position. Their task was to find out what opinion a teacher had of two pupils. Tey were to imagine a situation in which the teacher set a very difficult piece of work involving results and were given a grade 5 (faile). The teacher knows that both have put in the same amount of effort. When the

teacher returns the work the teacher says in annoyance to Peter, "That was a grade 5" (criticism). In Dieter´s case, the teacher makes no comment (neutral reaction). As a dependent variable, a five-point scale was used to record how mathematically talented the teacher considers the two pupils (from not at all to very talented). The 180 pupils were divided at random into four groups. These had the following differences: the first group (N=53) worked on the questionnaire described above. The questionnaire for the second group (N=46) contained the additional information, "The teacher likes both pupils very much". Differing degrees of liking can play a role as a possible perceived reason for differential sanctioning. If this reason is kept constant, inferences about which could arise from a perceived connection between liking and talent are no longer possible. The third group (N=51) received a questionnaire which included instead the additional information that the teacher likes (the criticized) Peter very much, but not the (uncriticized) Dieter. The formation of this group arose from the consideration that the conclusion about the perceived ability

estimate must be more definite when the teacher's liking for the pupil, considered as possible cause for the sanctioning behaviour, acts as an inhibiting factor (after the augmentation principle of Kelley, 1973). The questionnaire for the fourth group contained the following situation: the teacher writes a very difficult mathematical equation on the blackboard. The pupils are told to write the solution into their exercise books. Both pupils put the same effort into solving the equation, but have found a false solution. The teacher says to Hans, "No, 35 is not right" (neutral reaction), which commenting to Klaus, "What on earth have you been doing? 35 is wrong!" (criticism). The subjects, after recording their assessment of the pupils' ability, were asked to give their opinion of the teacher's assumptions about talent in as much detail as possible. In all four groups a further episode preceded the work with the questionnaire, which contained other questions as well. This is not gone into here.

In all the groups, the dependent variable was

formed as follows: if in the talent ratings the subject marked a higher value for the criticized as for the non-criticized pupil, this was categorized as "paradox", while in the reverse case the category "orthodox"[4] was used. Subjects who had marked the same value for each student, received the value "neutral".

To confront the question of the retest-reliability of the dependent variable, the questionnaire of the first group was twice presented to a further 41 subjects at a distance of a week. The percentage of agreement in categories amounted to 68.5%. Considering the problems involved in difference scores, the reliability can just about be accepted. The 150 pupils of the first three groups worked on the abbreviated version of the cognitive ability test of Heller, Gaedicke, and Weinländer (1976), which measures the following intellectual areas: linguistic understanding, language-linked thought, arithmetical thought, ability to calculate, idea-related thought and constructive abilities.

Results of Experiment 1

Table 1 contains the frequency of the evaluation categories for the four experimental groups. The total values in the right-hand column show that

INSERT TABLE 1 ABOUT HERE

the majority of subjects (52.2%) revealed the paradoxical effect. The difference between paradox and orthodox is significant; χ^2 (1, N=180) = 4.46, $p < .05$. 36.7% reacted in an "orthodox" way (they believed the criticized pupil was considered by the teacher to be less talented than the non-criticized). 11.1% of the pupils drew no conclusions as to the perceived ability estimate from the different use of sanction.

The distribution of the answer categories over the four experimental groups is not significantly differentiated, χ^2 (6, N=180)=9.9, ns. An effect of the variation in instructions cannot, therefore, be confirmed. In group IV, only the 13 subjects were considered who had answered in a "paradox" way. Four answers could not be evaluated. Of the remainder, seven (78%) believed the teacher to have expected a better performance from the criticized pupil, and to have thus been more disappointed with this pupil, than with the noncritized one. The difference in intelligence values between those who reacted in paradox and orthodox manner was not significant, t (127) = 1.75, n.s. Nor does an effect of this kind emerge if the subjects are divided into groups according to year of birth and the differences for each group examined separately.

Discussion of Experiment 1

If appears possible, from the principal results of the experiment, to infer from the use of criticism that the teacher's perceived ability estimate is higher, without

needing to rely on the information about effort as a mediating factor in reaching this conclusion. In fact, in the ordering of the experiment, the possibility of forming presumptions by means of differing effort was precluded in all four groups. Thus Meyer's explanation does not hold true. Taking into consideration that the explanation becomes theoretically dubious when dealing with difficult tasks, the results support these initial doubts. Presumably, the pupils in group IV conceived the teacher's process as outlined at the top of Figure 1. The lower part of the figure contains the breakdown of the information about sanctions on the basis of this estimate as perceived by the pupil. As an alternative explanation

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INSERT FIGURE 1 ABOUT HERE

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this proposition has advantages over that made by

Meyer. It can explain existing results on the self-concept-related interpretation of individualizing behaviour by teachers (Meyer, 1984; Tacke and Linder, 1981), equally in the event of success or of failure. It arrives at the same forecasts for easy and difficult tasks and does not run into difficulties in the case of two pupils receiving different sanctions for failure in difficult tasks. As it does not make use of the principle of effort-dependent sanctioning, it avoids the ensuing difficulty of distinguishing between the case in which the teacher possesses an opinion about the effort exerted and that in which the teacher does not know how much effort the respective pupils have put in. Finally, it is also simpler as it does not need to rely on the assumption of a complex process of double presumption (the pupil is aware that teachers sanction according to effort and that teachers believe that the effort pupils make is related to their ability).

Interpretation of the results between the experimental groups must limit itself to indicating that the effectiveness of the augmentation principle

could not be proven.

These considerations are of a hypothetical nature. In the experiment, our procedure was not directly compared to that of Meyer and others (1979). Meyer, Plöger, and Conty (1980, cf. also Meyer, 1984, p. 170) found a weakening of the paradoxical effect in the case of success in very easy tasks (under the condition that "the tacher knows that both pupils put in equal effort"). Neither was Meyer's effort-based explanation directly juxtaposed with the expectation-based explanation prefered here. The second experiment was planned to test the two explanations against each other.

Experiment 2

The second experiment was planned to test what contribution to the explanation of the paradoxical effect of criticism each of the two theories can make: the effort-talent explanation and the expectation-discrepancy explanation. The hypothesis

was: If pupils are aware that the teacher had expected equal performances from the two pupils, they do not have the discriminating information which, according to the expectation theory, is valid. If the theory proved valid, a paradoxical effect should not arise. If it did emerge, the theory would be disproved: the inference of greater ability from criticism could no longer be put down to the assumption of differing performance-expectations. A paradoxical effect should arise in most intense form when neither information about the equivalence of the performance expectations, nor details about equal effort are given. The paradoxical effect will be weaker when information about equal effort is given (as in Experiment 1), weaker still if the subjects assume equal expectations about performance to have been present, and in weakest form if the subjects are told that the teacher had both expected equal achievements from the two pupils and known that they had made the same amount of effort.

Method of Experiment 2:

A total of 86 young people of both sexes from all types

of secondary school, aged between fourteen and seventeen, took part in the second experiment. The investigation was said to be serving to ascertain how well those questioned were able to place themselves in somebody else's position. Each subject worked on two episodes which corresponded to those in Experiment 1, with the sole difference that the tasks were not described as very difficult, but only as difficult. In addition, the form of the information about the criticism was modified; it read, "While the teacher criticizes Peter severely, the teacher only criticizes Stephen mildly". This builds on a criticism of the first experiment: the presumption that different subjects interpret in differing ways the statements selected to imply criticism or a neutral reaction. In a separate investigation, 38 critical statements by a teacher were presented to 20 pupils and 24 students. The subjects were told to imagine the statements had been made after a poor piece of work had been returned and that they were directed at individual students. Amongst other things, the task consisted of assessing the statements according to the degree of criticism

which came to expression in each. This revealed a very large variation around the median of the individual items. As a result, it was decided that in this experiment concrete statements should be replaced by an abstract description of the degree of criticism. To use the terminology of the introductory section, in Experiment 1 criticism$_{act}$, was given, leaving criticism$_{meant}$ open, while in Experiment 2, criticism$_{meant}$ was presented. Every subject had to react on two episodes. In one episode, the first pupil was criticized mildly, the second severly; in the other the order was reversed. As in Experiment 1, the dependent variable was a five-step assessment scale on which subjects were to record how mathematically talented the teacher considered each of the two pupils. As far as possible, the results of the two episodes were combined.

Four experimental groups were formed. In group I no supplementary information was given (N =20). In group II subjects were told that both pupils had put the same amount of effort (N = 22). In group III the

teacher was said to have expected the same performance from Hans and Klaus (or Peter and Stephen) (N = 21). Both pieces of information were given to subjects in group IV (N = 23).

Several manipulation controls were carried out in this experiment. To test whether a subject had taken in the essential information in accordance with the instructions, the subject was asked, immediately after having established the dependent variable, to give details about (a) how severely each pupil was criticized, (b) how much effort each pupil had made in the teacher's opinion and (c) what performance the teacher had expected in each case (as shown, better, worse). The details collected under (b) were assessed in groups II and IV from the standpoint of the manipulation check, and in groups I and III from the standpoint of an additional dependent variable. The details unter (c) were assessed in groups II and IV as manipulation checks, and in groups I and II as an additional dependent variable.

Results of Experiment 2

Firstly, the results of the various manipulation controls. On average, 86% of the subjects--asked immediately after recording the dependent variable--remembered correctly which of the two pupils was the more severely criticized and which the less criticized. Among the 14% who were confused, 5.8% believed both pupils to have been equally severely criticized. 8.2% remembered the experimentally induced differences in reverse form. The distribution of those subjects confused over the four experimental groups was not significant. Meyer, and others, (1979, Expt. 2) had established that between 55% and 93% of subjects had retained the information that, in an easy task, both pupils had been equally successful. Groups II and IV were tested as to whether the subjects had retained the information that the teacher knew both pupils had made an equal amount of effort. Amazingly, only 18.9% of the subjects had retained this information correctly. In contrast, 69.9% of the subjects thought they could remember that the less criticized pupil in each case had, in the teacher's view, made more effort.

Subjects in groups III and IV were examined as to whether they had retained the information about the teacher's expectation of equal performance. Only 33% of the subjects had correctly remembered that the teacher had expected equal results in each case. There was no significant difference in age and sex in the distribution over the four groups.

The results at which the experiment was aimed are summarized in Table 2. If one looks merely at the total values (right-hand column)

INSERT TABLE 2 ABOUT HERE

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a predominance of paradoxical reactions over orthodox ones is evident throughout all the groups $\chi^2(4, N = 86) = 3.93$, $p < .05$. The differences between the groups are of major importance in this experiment. The significance was tested by means of a 3 × 4--Chi-Square-Test. The

distribution of the frequencies over the three categories proved significantly different for the four experimental groups, $\chi^2(6, N=86) = 12.77$, $p < .05$. The expected successive disappearance of the paradoxical effect from group I to group IV clearly did not take place. Indeed, in group IV, where paradoxical responses had been least expected, they even occured in the greatest numbers. The variable age of the subjects (14, 15, 16, 17 years old) was not significantly linked to the frequency of paradoxical reactions. Only in episode 1 was the reaction between the sexes significantly different: girls reacted in orthodox manner more frequently than boys, $\chi^2(2, N=86) = 6.16$, $p < 0.5$. These results find confirmation in a further, similarly constructed experiment which also used 86 pupils aged between 14 and 17. On this occasion, sanctions were presented as concrete verbal statements. The proportion of subjects reacting in paradoxical manner was in this case as low as 30%. No significant differences emerged between the four experimental groups, $\chi^2(6, N=86) = 7.86$, n.s.

The results on the other dependent variables in groups I to III can provide us with a closer analysis. In group I, 65% of the subjects thought that the severely criticized pupil had made less effort in the teacher's view. The same was true of group II (64.3%), which confirms results of Meyer and others, (1979, Expt. 4), as well as Meyer, Engler, and Mittag (1982). In group I, 52.5% of the subjects believed simultaneously that the teacher had expected more from the more severely criticized pupil than the pupil had achieved, while only 35% assumed this of the more mildly criticized pupil. The subjects in group II produced similar reactions (50 compared with 34%) that the subjects connected the differing criticism to considerations both about effort and expectation. This suggests the conclusion

A closer observation of the links between the variables within the experimental groups proves rewarding. Both within each group and for the group as a whole subjects who reacted paradoxically were juxtaposed with those who gave orthodox responses. A record was made of how often each individual subject

believed that the teacher

- attributed less effort to the more severely criticized pupil

and

- had expected more of the more severely criticized pupil.

INSERT TABLES 3 AND 4 ABOUT HERE

The results are summarized in Tables 3 and 4. Connections can be calculated by means of phi- and point-biserial correlations.

Effort A majority in both groups of subjects--both those who reacted paradoxically and those whose response was of an orthodox

nature--reported that the teacher believed the less criticized pupil to have made more effort (85% and 67% respectively). The correlation between effort and paradox/orthodox amounts to $r_{phi} = -.22$, $p < .05$. A closer connection, however, is to be found between the variable criticism/no criticism and the extent to which the subject considered the respective pupil to have exerted himself: $r_{pbis} = -.42$, $p < .001$.

Expectation The expectation results discriminated between paradoxically reacting subjects and those reacting in orthodox manner: the majority of those giving orthodox responses (78.6%) stated that the teacher had expected a better performance from the less criticized pupil, while a similar majority of those reacting paradoxically (93%) believed the teacher to have expected a better performance from the more severely criticized pupil. Correspondingly, the connection between expectation and paradox/orthodox amounts to $r_{phi} = .53$, $p < .001$. On the other hand, the correlation of the variable criticism/no criticism with the attributed performance expectation

is lower than with the variable effort:

$r_{pbis} = .23$, $p < .001$.

Discussion of Experiment 2

The results of the manipulation controls for the information equal effort and/or equal expectation are negative. The reactions of subjects in those experimental groups which had been given such information did not differ in these variables from those who had not received the information. Subjects reacted as though the information had not been made available. Why did the information included in the instructions given to groups II to IV have such minimal effect? It is possible that the situation as given was conceived to be so unrealistic that the conditions necessary to draw conclusions about the perceived ability estimate added to the given framework. In retrospect, subjects made pieces of information which appeared to them incongrous, into a coherent whole. A less probably interpretation is that the various details given in the scenario could not all be accommodated in the short-term memory.

A comparison of the groups did not, in this experiment, lend support to the hypothesis developed on the basis of the results of the first experiment, that differences in the perceived ability estimate are inferred from differences in sanctioning primarily on the basis of differential performance expectations rather than on the basis of differences in effort. The argumentation was intended to lead to the reverse conclusion by demonstrating that subjects without the possibility of forming differential expectations about performance, do not draw conclusions about talent in a paradoxical manner. As the vital parts of the instructions, despite being visually emphasized in the text, did not prove effective, this line of argumentation failed. It can be used neither to confirm nor to refute the assumption.

The data, however, do raise the possibility of offering positive proof by testing which variable (effort or expectation) discriminated between subjects with orthodox and paradoxical reactions. Here it is

notable that the presumption of effort-dependent sanctioning is only slightly dependent on which kind of reaction (paradox or orthodox) follows. As far as attributing talent is concerned, the condition effort was of hardly any significance as a discriminating factor. It was, in contrast, expectation which proved discriminatory. The analysis of connections within the experimental groups revealed that, although both theoretical attempts to explain paradoxical reactions could be referred to, the expectation-discrepancy explanation could account for more variance in the dependent variable than Meyer's effort-talent explanation. In addition, the expectation-discrepancy explanation is able to cast light on other recorded results which would otherwise appear contradictory. Brophy and Good (1974, pp. 66 - 69) report on a series of investigations in which the influence of teacher expectations and teacher feedback on the performance of pupils was examined. It transpired that high performance expectation combined with negative feedback produced the most positive effect on pupils. In the light of our theory, this would mean that negative

feedback reveals high teacher expectation. An awareness of the perceived ability estimate which lies behind this motivates the pupil and incites him to higher performance.

A single model combining the two attempted explanations will appear, on the basis of the calculated bi-variate connections, as follows:

INSERT FIGURE 2 ABOUT HERE

Most immediately, the weak connection between criticism and talent illustrates that the paradoxical means of response was, as a whole, fairly weak. It follows that two cognitions can assume a mediating function. The most obvious reaction of the subjects to differential sanctioning is to conclude that the two pupils had put in differing amounts of effort. This supports the first part of Meyer's explanation. The second part--the notion that calculation of effort is

assumed--receives little support. The connection between the attribution of effort and that of talent is negative but comparatively weak. This supports the criticism raised principally about the use of the principle of effort calculation as a component in the explanation. Given differences in sanctioning, subjects infer less often differing degrees of effort than they do differential performance expectations. On those occasions when such inferences are made, however, they are as a rule accompanied by assumptions about differences in the perceived ability estimate. In the remaining points, the two forms of conclusion provided reciprocal support, since the subjects assumed that pupils from whom the teacher had expected more in the way of performance had, in general, made less effort than those with low performance expectations.

For the two previous experiments the point of departure was the assumption that subjects at a young age, given differential sanctioning by the teacher for the same performance, tend to infer a difference in the perceived ability estimate. It was examined in what

way these conclusions were reached and which mediating cognitions played a role in the process. This assumption is not, however, necessarily valid. It is possible that, in practice, conclusions about talent have a far less pronounced significance than that assumed here. The third experiment was planned to examine the causes to which young people trace back differences in teacher sanctioning.

Experiment 3

In this experiment, the dependent variable was not established by presenting a talent scale or any other kind of scale. Instead, subjects were allowed to name the reasons they presume for a teacher criticizing or praising two pupils in different ways for the same performance. Investigating this question with adults, Meyer (1978, see also Meyer, and others, 1979, Expt. 6) allowed only one answer in each case. He arrived at the result that most of the subjects (70%) supposed that differences in the perceived estimate of ability or performance to be the underlying factor. Experiment

3 represents a replication of Meyer's experiment using subjects of a younger age and differences in some operational details.

Method of Experiment 3:

A total of 225 young people between the ages of thirteen and eighteen took part in the investigation. 100 were questioned about "praise", the remainder about "criticism". The subjects were taken from the various types of secondary school (secondary modern, grammar school). In the questionnaire the purpose was presented as "to investigate what could be the reason for a teacher either praising or criticizing two pupils in different ways for the same performance (that means pupil A is praised moderately, while pupil B is praised highly)". Subjects were advised to imagine a situation in which they had already been able to observe, or possibly even undergo, such an experience. Then they were asked to write down two to five reasons for the differing degrees of the teacher's praise/criticism of the two pupils A and B. The next

step involved marking in sequence the significance of these reasons by distribution of the letters a, b, c..... Two independent advisers classified the answers into a system of eleven categories (see Table 5). The point to point agreement over all the categories amounted to 92.2%. In addition, each answer entered was identified as "paradox", "orthodox" or "neutral". The classification "paradox" was used when it was evident that the subject believed the teacher to have a more positive attitude towards the more severely criticized pupil. The agreement between the advisers amounted to 93.7%, 98.3%, and 95.5%.

Results of Experiment 3

In the "praise" situation, a total of 434 different responses were entered, against 402 in the "criticism" situation, that means, an average of 3.7 entries per subject. The number of entries in each category was determined and relativized in regard to the total number of entries. The distribution of entries over the eleven categories (in percent) are shown separately for praise and criticism in the first two columns of

Table 5. The distribution of frequency for criticism is not significantly different from that of praise, χ^2(10 N=225) = 13.13, n.s. All in all, paradoxical interpretations occured only rarely: only 13,4% of all responses were classified as such.

INSERT TABLE 5 ABOUT HERE

The classification according to orthodox, paradox, neutral is not independent of the categories: χ^2(20, N=225) = 863.28, $p < .001$. Paradoxical interpretations arose above all in connection with the category "General School Performance" (e.g. "Pupil A is poor in other situations and is less criticized or more praised for this reason"), with the category "Positive Pedagogical Intentions" (e.g. "Pupil A has little self-confidence, is desheartened and should not be demoralized") with the "expectation discrepancy" ("More criticism, since better performance expected") as well as with the

category "Talent" ("Pupil has been having difficulty"). The 2.3% interpretations which followed the expectation-discrepancy explanation can be contrasted with the 1.6% which reveal the pattern of Meyer's effort-talent explanation. The distribution of the variables orthodox, paradox, neutral according to the different types of school was of as little significance as that according to the three different age groups investigated (13 - 14, 15 - 16 and 17 - 18 years old). Difference between the sexes, however, was significant ($\chi^2_{(2,N=225)} = 14.48$, $p < .001$. Girls produced about twice as many paradoxical interpretations as boys. Also significant was the relation between orthodox, paradox, neutral and praise/criticism, ($\chi^2_{(2,N=225)} = 18.12$, $p < .001$. Paradoxical interpretations arose far more frequently in the case of praise (18.2%) than in the case of criticism (8.2%).

Each subject had placed the responses in sequence according to importance. In the following, only that reason singled out as most significant by each subject will be considered. Although the distribution among

the categories was somewhat different, the Spearman correlation between the categories amounts to Rho = .86. The significantly different distribution of the orthodox, paradox, neutral reactions on praise/criticism ($\chi^2_{(2,N=225)=18.04}$, $p < .001$, was confirmed, but not that on the difference between the sexes, ($\chi^2_{(2,N=225)} = 4.65$, $p < .10$.

Discussion of Experiment 3

Firstly, it should be pointed out that the third experiment produced results which provide a quite substantial contradiction of those reached in the sixth experiment of Meyer, et al. (1979) to which it can be seen as a replication. The younger subjects in our experiment presumed reasons connected with liking and preference to a considerably higher extent than the adults in Meyer's investigation. Conversely, a difference in perceived ability estimate was assumed considerably less often to be a reason for different sanctioning. A possible objection to this interpretation, based on the results of Meyer and Plöger (1979), could be that the predominance of liking

as an inference only occurred because the subjects assumed the teachers did not know the pupils well. In the experiment mentioned, the students who had been questioned only believed the teacher considered the more highly praised pupil more likeable if the teacher had been said to be new to the class. However, this objection would have to be refuted, as it is evident from most of the information given that the subjects acted in accordance with the instructions and tried to remember similar situations in a familiar context. Many pupils expressly referred to personal experiences with teachers. The results imply that the experimental paradigm chosed by Meyer and taken over by us is not ecologically valid in its use of a given talent scale, in the sense that young people do not, in the principal point of the model situation, draw conclusions about the perceived ability estimate. It therefore becomes of less interest to ask what individual form conclusions of this kind could take. Other results are equally of little relevance for the educational situation, as they are clearly restricted to adult subjects; examples are the results of Meyer, Engler and

Mittag (pending), from which it emerged clearly that the subjects attributed a more positive effect to the more severely criticized or less praised pupil, and Meyer, Engler, and Mittag (1982), who found that student subjects saw tasks as more interesting if they had been criticized for failure in fulfilling them (Meyer and others, 1982).

The theory proposed to explain paradoxical interpretations, corresponding to the result of Experiment 2, appears more effective than that of Meyer. Both, however, are of secondary importance in clarifying all the interpretations which arose. The results of the variables "type of school" and "age", confirm the findings in the first experiment that neither the intelligence nor the age of the young people play a determining role in forming paradoxical interpretations. Praise is evidently regarded more intensely than criticism as a means by which teachers seek to have a constructive effect on pupils who are poor, weak, anxious or in some way in need of encouragement.

All three of the reported experiments examined the question of how young people interpret teacher sanctions in performance situations. However, individuals involved in education use sanctions in various contexts, of which the performance situation is only one. The fourth experiment can offer some insight into which interpretations emerge when negative sanctioning is related to behaviour which reveals forgetfulness, lack of concentration or laziness.

Experiment 4[3]

The procedure of the fourth experiment also involved Meyer's experimental paradigm. However, as a means of realizing the behaviour of sanctioned pupils (B), performance results which can be attributed to the disposition "talent" were no longer used, but instead forms of behaviour which can be classified as the dispositions "industry/laziness", "ability to concentrate" and "forgetfulness". This was intended as a means of examining the generality of the paradoxical

effect. It is possible that sanctions in varying contexts contain differing information, which allow different conclusions on the underlying perceived estimates.

Method of Experiment 4:

A total of 177 young people between the ages of fourteen and seventeen took part in the fourth experiment. They were divided into four groups. The fifty subjects in group I (laziness) were confronted with two episodes in which they were told that two pupils have not done their homework. The teacher sanctions one of the pupils more severely than the other. For instance the teacher demands that the first pupil produce the homework in time for the following lesson, while giving the other extra work as punishment. The two episodes differed in the sequence of criticism/noncriticism respectively. As dependent variable, a fivepoint scale was used for the subjects to record how lazy the teacher is likely to consider each of the two pupils. In the two episodes of the second group, concerned with concentration (N =48),

two pupils were depicted who had failed to fulfil a task demanding merely concentration (for instance, copying from the blackboard into an exercise book). Again, each received a different degree of criticism. As dependent variable, subjects were asked to use two five-point scales to indicate how well each pupil can concentrate in the teacher's opinion. The 49 subjects in group III (forgetfulness) were confronted with two episodes in which two pupils have forgotten something almost taken for granted (an easy formula, or leaving an exercise book at home). Once again subjects were asked about the teacher's opinion of the forgetfulness of two pupils who received different sanctions. As in Experiment 1, the subjects in groups I and III underwent an intelligence test. The thirty subjects in group IV were identical with those of group IV in the first experiment. They were given the second episode from group III ("forgetting the exercise book") and asked in addition to give reasons for the teacher having the reported view of the two pupils.

Results of Experiment 4

As in Experiment 1 - 3, the kind of interpretation (orthodox, paradox, neutral) was established for each subject per episode. The results of both episodes were averaged and relativized. Table 6 shows the results.

INSERT TABLE 6 ABOUT HERE

They are quite unambiguous. There is hardly a hint of paradoxical inference in any of the instances. On the contrary, the more severely criticized pupil was, for the most part, attributed a more negative expression of the relevant disposition as the pupil receiving less or no sanction. Of the 24 subjects in group IV who reacted in orthodox manner, only sixteen gave responses which could be evaluated. The reason suggested by 56% was that the criticized pupil often forgets his book, while it is exceptional for the other to do so. Four subjects interpreted the teacher's

criticism as necessary to prevent a recurrence of the forgetful behaviour. Performances in the intelligence test did not reveal a significant difference between subjects with paradoxical and orthodox reactions in the first episode of groups I to III, $\underline{t}$ (120)=.95, but in the second episode, $\underline{t}$ (123)=-2.25, $p<.05$. On average, subjects reacting in orthodox manner had a higher IQ than those reacting paradoxically.

Discussion of Experiment 4

Given teacher sanctions, young people make inferences about the teacher's perceived disposition estimate in non-performance situations. While in performance situations, given a disposition scale, a positive outside view of talent is often inferred from negative sanctions, young people conclude exactly the oppositive from nonperformance situations. Severe criticism is not assumed of the pupil who has disappointed expectations, but of the one who is, as expected, "lazy", "forgetful", and so forth. The following explanation seems feasible: Different character is attributed to the trait "talent" than to "laziness" or

"forgetfulness". Differences in talent are conceived as a reason for differences in performance. They are regarded as stable and hardly under the control of personal will-power. "Laziness", in contrast, is less a theoretical, dispositional concept which must first be inferred and seen as a reason for observable behaviour. It is more an observational concept, a collective definition for lazy behaviour which is, in addition, conceived as accessible to control by will-power. Presumably, therefore, another kind of expectation was formed in this experiment. This is not based on a concept of ability, but on a concept of will. It is less a given disposition of the individual person who is made responsible for the behaviour to be sanctioned. The individual is asked to account for the behaviour in stronger terms. Sanctioning is understood to be unmediated (Weiner and Kukla, 1970). Laziness, for instance, is less excusable in a lazy person than in an industrious one.

General discussion

The results of the four reported experiments are

discussed under the following three aspects: the occurrence of the paradoxical effect, its explanation, and the interpretations young people give to sanctions.

1. Firstly, it must be emphasized that in all four experiments the extent to which the subjects presumed a higher perceived ability estimate for the more severely criticized pupil was small. In none of the four groups in each of the first two experiments were even approximately as many paradoxical reactions registered as in Meyer's investigations with comparable age groups (Meyer, 1978, Expt. 1; Meyer and others, 1979, Expts. 1 and 2). This could be accounted for by the fact that Meyer used only the situation "success in easy tasks" in those experiments using children and Teenagers. In our first two experiments, the situation "failure in difficult tasks" was used. However, precisely in the third experiment, in which a degree of difficulty was not given, paradoxical interpretations occurred only rarely. Similarly, in non-performance situations (Experiment 4), paradoxical interpretations were rare to the point of gradually vanishing.

Evidently, young people are not (yet) so crafty and subtle in making interpretations as to consider principally the potentially positive implications of criticism and thus to evade the negative content. It seems possible that the main reason for Meyer being able to attain different results was that he was working primarily with adult subjects. In other research, there are indications that children have difficulty in inferring the opposite from the obvious. Zillmann, Masland, Weaver, Lacey, Jacobs, Dow, Klein and Banker (1984) have established, using five to ten-year-olds, as have Cantor and Reilly (1979 quoted by Zillmann and others, 1984) with twelve to fourtheen year-olds, that the children were unable to see through the ironical presentation of a set of facts. They were unable to recognize that the intention had been distorted by discrepancies in the information and thus could not correct the presentation by removing the distortion. According to Helmers (1965), individuals achieve an understanding of irony only at the age of eighteen. Investigations of the development of

interpersonal cognitions of young people towards educators (Selman, 1984, Youniss, 1980) invite the assumption that the ability to co-ordinate one's personal perspective with that of the educator and to match these mutually, is already present from the age of thirteen. Certainly, the results of our third experiment contain a series of interpretations by teenagers about the teacher's possible intentions. However, paradox reactions, converting the sanction into opposite information, occurs only rarely. This is not surprising if one considers that even adults have difficulty in interpreting compliments. Although American individuals know that about a third of all compliments are not to be taken literally, but are either of manipulative character or spoken out of pure politeness, the individuals investigated by Knapp, and others, (1984) did not record any negative feelings in the reception of compliments. Hardly ever are compliments met with contradictions or mistrust; they are received in a direct and positive way. Even if, in American society, compliments are frequently direct and arise in exaggerated form compared to in other

cultures, they still have positive effects on the recipients. This contradicts the observations made by Kanouse, and others (1981), that praise is devalued under certain conditions.

2. Concerning those subjects who revealed the paradoxical reaction as defined within the selected experimental paradigm, the results of the three experiments suggest that, given severe criticism, younger subjects reach the conclusion of a higher perceived ability estimate less by means of the double inference of effort-dependent sanctioning and ability-dependent effort, but rather by assuming disappointment about a performance which turned out worse than expected. The theoretical weaknesses of Meyer's proposed explanation were exposed. Experiment 1 also provided empirical evidence that paradoxical reactions also occur if the possibility of inferring talent from effort is prevented by giving the information that the teacher knows both pupils to have made equal effort. Results from group IV in the first experiment suggested that the expectation-discrepancy

means of reaching a conclusion was in operation. With the aid of group comparisons, the second experiment was unable to prove this theory as valid. This was put down to ineffectiveness in the instructional components. It was, however, evident, under all experimental conditions, that the variable "teacher expectation" discriminated much more acutely between subjects with paradoxical and orthodox reactions than the variable "effort". Finally, in the third experiment, the majority of those subjects arguing in less paradox manner claimed the teacher had criticized A more severely because expecting more from A. Although only in part, these results also offer evidence which contradicts Meyer's suggested explanation. This was not proven false. However, there are both empirical and theoretical arguments that the expectation-discrepancy explanation is the simpler, more consistent and comprehensive proposal which, in addition, explains more variance.

3. A final conclusion from the results of these investigations is that inferences from differential

teacher sanctioning about the teacher's perceived ability estimates can only play a role of any importance at all if the subjects are confronted with a talent scale and feel it necessary to give an opinion on the issue. In other cases, a large number of different reasons are given for the differences in sanctioning. For the most part, these are linked to differences in liking for the two pupils. Once again, the results reached clearly contradict those of the analogous experiment by Meyer (Meyer, and others, 1979, Expt. 6). The schematic presentation of the interpretative models for praise and blame would have to go beyond Figure 2 and assume the kind of form used in Figure 3. This summarizes the overall results.

INSERT FIGURE 3 ABOUT HERE

Paradoxical interpretations occupy only little space. Only in these cases is a reverse interpretation

visible. That these interpretations are independent from the intelligence performances (measured in Experiments 1 and 4) indicates that differences in interpretation must be accounted for by other factors than those of intellectual performance ability.

It would be mistaken to see the fact that subtle reversing interpretations were largely absent as confirmation of the view of the reinforcement theory that praise has positive and blame negative effects on sanctioning behavior. Children and adolescents can interpret praise and blame in quite different ways. In doing so, they know how to put themselves in the teacher's position and to find overlaps between their perspective and that of the teacher. The various mediated interpretative models allow this interpretation. How does the interpretation of a concrete expression of praise or blame occur in a real school situation? Presumably, pupils take into consideration information about the special situation as well as experiences about the behaviour of the teacher in such situations. General interpretative

models are undoubtly used as well, representing the components of naive theories (e.g. "teachers don't like pupils who contradict them"). All this excludes an interpretation of the result under the reinforcement point of view. On the contrary, it is time not only to investigate the thoughts of teachers and parents, but to take an interest in the mediating cognitions in children, which play a role in their approach to education (cf. also Doyle, 1978).

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[1]The first and fourth experiments were carried out within the framework of a DFG project (Az. Ho/649/3) by Gero Tacke. The second experiment was carried out in collaboration with Birgit Pikowsky and the third with Hans Lehr. Im am grateful to L.-M. Alisch for his constructive comments on earlier versions of this article.

[2]The notion of a paradoxon is problematic. It demands an explication of the theory for which an antinomy is stated.

[3]more detail in Hofer, M., Tacke, G., and Dobrick, M. (1982)

[4] The use of the terms "paradox", "orthodox", and "neutral" is purely descriptive and does not imply any theoretical assumptions.

[5] For more detailed analysis see Hofer, M., Tacke, G., and Dobrick, M. (1982).

Table 1

Percentages of Pupils in the Four Groups of Experiment 1

	Group1 Equal Effort	Group2 Equal Effort Equal Liking	Group3 Equal Effort Difference in Liking	Group4 Equal Effort	Total
Paradox	54,7	47,8	58,8	43,3	52,2
Orthodox	32,1	39,1	27,5	56,7	36,7
Neutral	13,2	13,0	13,7	0	11,1
N	53	46	51	30	180

Table 2

Percentages of Pupil Reactions in the Four Groups of Experiment 2

	Group 1	Group 2 Equal Effort	Group 3 Equal Expectation	Group 4 Equal Effort, Equal Expectation	Total
Paradox	52,5	45,4	52,4	63,1	53,5
Orthodox	40,0	52,3	42,8	21,7	38,9
Neutral	7,5	2,3	4,8	15,2	7,6
N	20	22	21	23	86

Table 3

Frequencies (Percentage Values in Parentheses) of the Statements of Orthodox and Paradoxically Reacting Subjects About the Relation Criticism / Effort

	Less Criticized Pupil Made More Effort	More Criticized Pupil Made More Effort	
Orthodox	38(66,7)	19(33,3)	57(41,3)
Paradox	69(85,2)	12(14,8)	81(58,7)
	107(77,5)	31(22,5)	138

Table 4

Frequencies (Percentage Values in Parentheses) of the Statements of Orthodox and Paradoxically Reacting Subjects About the Relation Criticism/Expectation

	Better Performance Expected of Less Severely Criticized Pupil	Better Performance Expected of More Severely Criticized Pupil	
Orthodox	44 (78,6)	12 (21,4)	56 (44,1)
Paradox	5 (7)	66 (93)	71 (55,9)
	49 (38,6)	78 (61,4)	127

Table 5

Percentage Distribution of the Statements on Criticism and Praise over the Eleven Categories. Percentage Distribution of the Orthodox/Paradox Interpretations as well as the Percentage Assessment Agreement per Category

	Praise	Orthodox	Paradox	Neutral	% Assessment Agreement
1. Preference/Disadvantage due to Non-School Factors	20,1	19,1	18,9	0,6	0,1	94,3
2. Liking (Unfounded)	19,7	17,3	18,2	0,1	0,1	92,3
3. Behavior in Class	17,2	14,7	15,6	0,2	0,1	96,3
4. General School Performance	12,2	15,4	8,3	4,5	0,8	93,4
5. Teacher's Mood	10,2	8,1	1,1	0	8,0	92,9
6. General Motivation to Learn	7,5	5,3	5,3	0,8	0,2	93,3
7. Positive Pedagogical Intentions	6,0	8,5	1,0	2,6	3,7	89,3
8. Present Effort	2,7	5,1	3,9	0	0	84,4
9. Expectation Discrepancy	2,2	3,0	0,4	2,3	0	77,6
10. Ability	1,7	3,2	0,6	1,9	0	71,4
11. Miscellaneous	0,5	0,2	0,1	0	0,2	50
Σ	100%	100%	73,2%	13,4%	13,4%	Ø = 92,2%

Table 6

Percentages of Pupil Reactions in the Four Groups of Experiment 4

	Group 1	Group 2	Group 3	Group 4	Total
	Laziness	Concentrational Ability	Forgetfulness	Forgetfulness	
Paradox	5	16,7	11,2	20	12,4
Orthodox	83	64,6	74,5	80	75,2
Neutral	12	18,7	14,3	0	12,4
N	50	48	49	30	177

Figure 1

(Top) Teacher Cognitions Assumed by Pupils When Criticized for Failure in a Task

(Bottom) Inferences About the Teacher's Perceived Ability Estimate on the Basis of the Above Assumptions

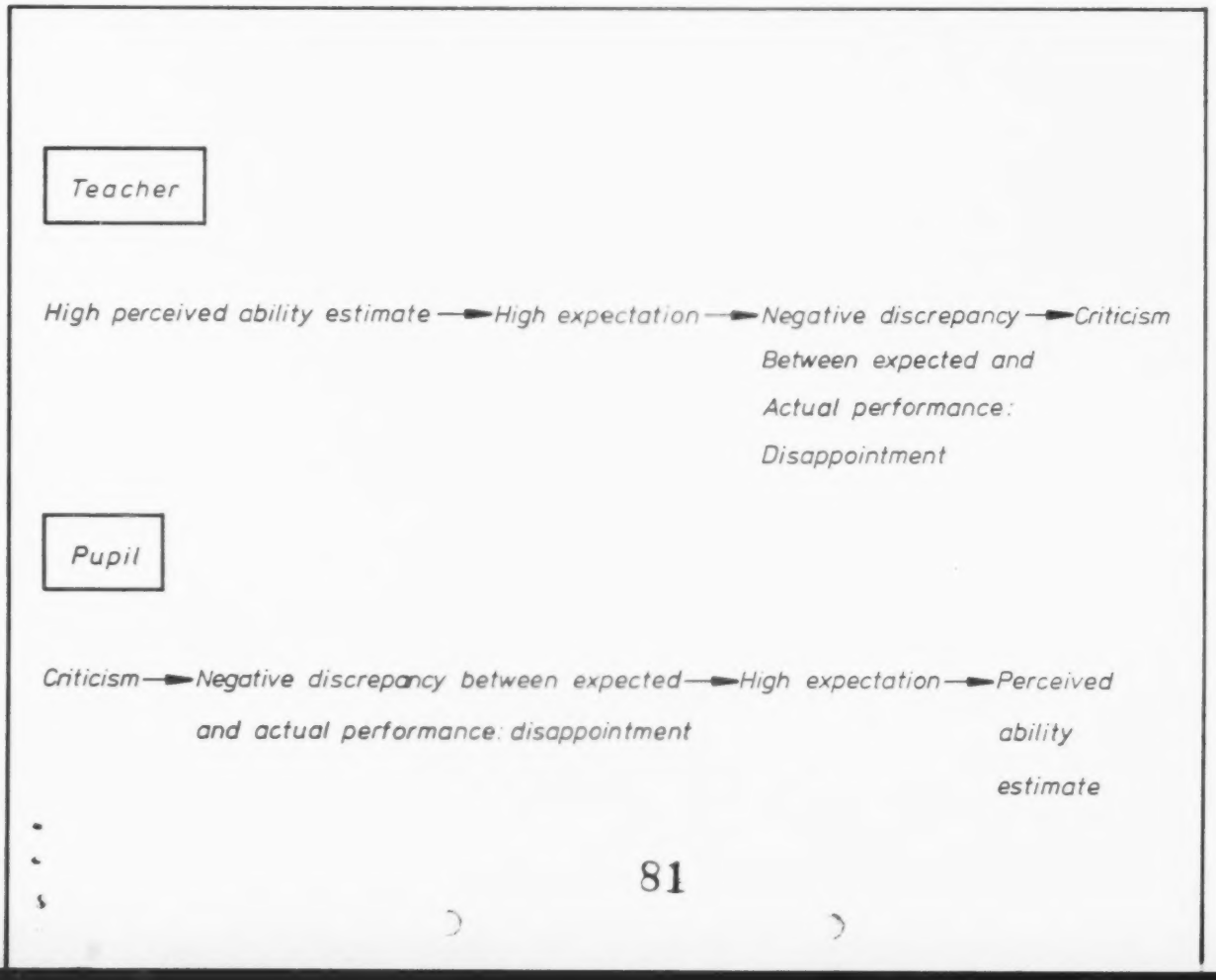
Teacher
High perceived ability estimate → High expectation → Negative discrepancy Between expected and Actual performance: Disappointment → Criticism
Pupil
Criticism → Negative discrepancy between expected and actual performance: disappointment → High expectation → Perceived ability estimate

Figure 2

Explanatory Model on the use of Critcism as Information About the Perceived Ability Estimate

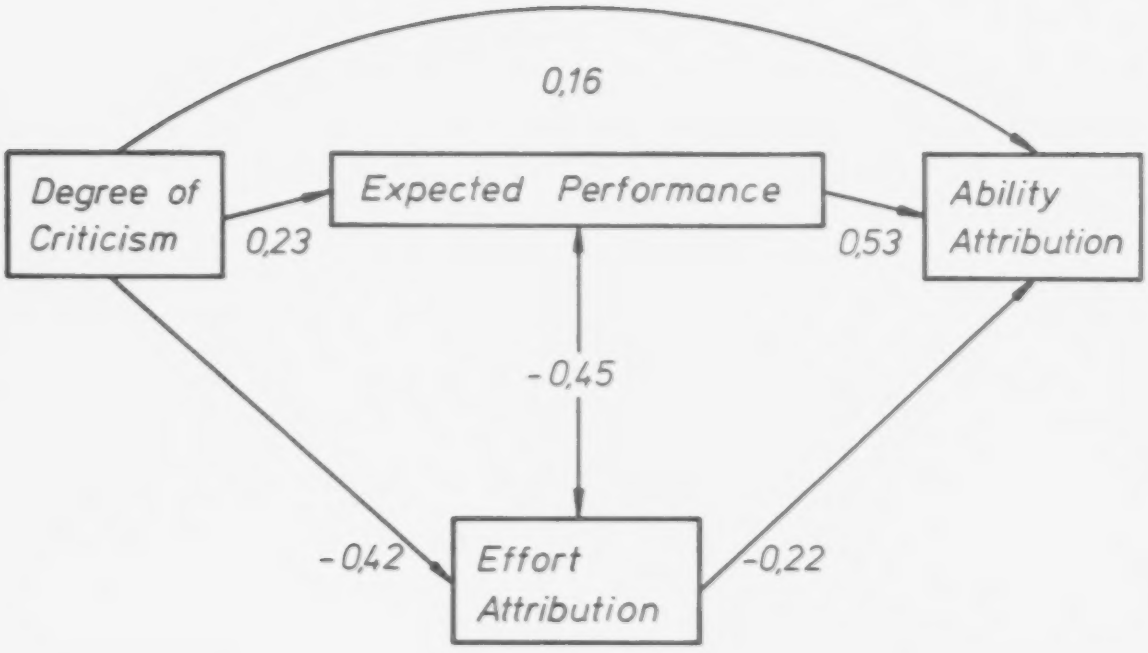

Figure 3

Explanatory Model for the Interpretative Patterns of Young People With Regard to Praise/Criticism of the Teacher in Performance Situations